

Claims

1. A light modulating device having at least one pixel comprising a plurality of separately addressable sub-pixels of different areas wherein the area of a first separately addressable sub-pixel is smaller than the area of a second separately addressable sub-pixel and wherein the area of the second sub-pixel is not substantially a multiple of the area of the first separately addressable sub-pixel the device further comprising an addressing means for, in use, selectively addressing the sub-pixels so as to select any one of more than two transmission/reflection levels, the first and second sub-pixels having the same number of selectable transmission/reflection levels.
2. A light modulating device as claimed in claim 1 wherein the addressing means is adapted to address each sub-pixel with any one of a predetermined set of addressing waveforms.
3. A light modulating device as claimed in claim 1 wherein the first and second sub-pixels each comprise n latching regions, each latching region having a different latching threshold.
4. A light modulating device as claimed in claim 1 wherein the first and second sub-pixels are adapted to exhibit the same number of partial latching levels.
5. A light modulating device as claimed in claim 1 wherein the second separately addressable sub-pixel has the next largest area to the first addressable sub-pixel.
6. A light modulating device as claimed in claim 5 wherein the area of each separately addressable sub-pixel is not a multiple of the area of the next smallest separately addressable sub-pixel.
7. A light modulating device as claimed in claim 1 wherein the first addressable sub-pixel is the smallest addressable area and none of the other addressable areas is a multiple of the area of the first addressable sub-pixel.

8. A light modulating device as claimed in claim 3 wherein the latching regions are adapted such that, in certain operating conditions, partial latching of a latching region can occur.
9. A light modulating device as claimed in claim 8 wherein the ratio of the areas of the first and second addressable sub-pixels is chosen so that there are no redundant grey levels when operating in conditions that allow partial latching and also when operating in conditions that do not allow partial latching.
10. A light modulating device as claimed in claim 1 wherein there are only two addressable sub-pixels.
11. A light modulating device as claimed in claim 10 wherein the ratio of the areas of the first and second addressable is chosen from the following; $2:2n+1$, $n:2n+1$ or $n+1:2n+1$ where n is the number of latching regions.
12. A light modulating device as claimed in claim 1 wherein the device comprises a zenithally bistable liquid crystal device.
13. A light modulating device having at least one pixel and a driver for addressing the pixel wherein the driver addresses the pixel with at least a first sub-frame and a second sub-frame wherein the second sub-frame has a longer duration than the first sub-frame and the duration of the second sub-frame is not substantially a multiple of the duration of the first sub-frame.
14. A light modulating device comprising a plurality of sub-pixels wherein the device is adapted to be operable in a first condition where each sub-pixel has n transmission/reflection levels and a second condition where each sub-pixel has m transmission/reflection levels, where n and m are not equal, and also comprising means for addressing each sub-pixel with at least two bits of dither and wherein the weighting of the bits of dither is adapted to work with both n or m transmission/reflection levels.